INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/11153

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B41M5/26 B41M5/025 B41M3/14 B44B5/00 B42D15/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B41M B44B B42D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 197 06 295 A (TAMPOFLEX GMBH) 27 August 1998 (1998-08-27) column 2, lines 6-13; claims 1-10; figures 1-9	1-6
X	EP 1 127 710 A (MINNESOTA MINING & MFG) 29 August 2001 (2001-08-29) paragraphs '0008!, '0009!, '0012!, '0027!, '0044!	1-8
X	EP 1 288 719 A (FUJI PHOTO FILM CO LTD) 5 March 2003 (2003-03-05) paragraph '0003!; claims 1-8	1-8
X	EP 1 318 486 A (FRACTURE CODE CORP APS) 11 June 2003 (2003-06-11) the whole document	7,8

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 June 2004	01/07/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Spyropoulou, E

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/11153

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/53113 A (FLEX PRODUCTS INC) 26 July 2001 (2001-07-26) the whole document	7,8
X	US 2003/104308 A1 (SHIMOMURA AKIHIRO ET AL) 5 June 2003 (2003-06-05) paragraphs '0003!, '0175!; claims 1-6	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP 03/11153

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
DE 19706295	A	27-08-1998	DE	19706295 A1	27-08-1998
EP 1127710	A	29-08-2001	US	6153038 A	28-11-2000
			EP	1127710 A1	29-08-2001
			AU	732752 B2	26-04-2001
			AU	9316398 A	29-03-1999
			BR	9811451 A	15-08-2000
			CA	2302337 A1	18-03-1999
			CN	1269751 T	11-10-2000
			DE	69804978 D1	23-05-2002
			DE	69804978 T2	29-08-2002
			EP	1011983 A1	28-06-2000
			IL	134790 A	12-09-2002
			JP	2001515808 T	25-09-2001
			WO	9912743 A1	18-03-1999
EP 1288719	A	05-03-2003	JP	2003072250 A	12-03-2003
			EP	1288719 A2	05-03-2003
			US	2003143379 A1	31-07-2003
EP 1318486	A	11-06-2003	CA	2413898 A1	07-06-2003
			EP	1318486 A1	11-06-2003
			WO	03049047 A1	12-06-2003
			GB	2383878 A	09-07-2003
			US	2003121984 A1	03-07-2003
WO 0153113	A	26-07-2001	AU	1194901 A	31-07-2001
			CA	2397806 A1	26-07-2001
			CN	1423598 T	11-06-2003
			EP	1252027 A1	30-10-2002
			JP	2003520986 T	08-07-2003
			WO	0153113 A1	26-07-2001
			US	2004101676 A1	27-05-2004
US 2003104308	A1	05-06-2003	JP	2002337370 A	27-11-2002

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/011153	International filing date *(day/month/year)* 09.10.2003	Priority date *(day/month/year)* 09.10.2003
International Patent Classification (IPC) or both national classification and IPC B41M5/26		
Applicant SAUERESSIG GMBH + CO. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
01.04.2005	31.01.2006
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Spyropoulou, E Telephone No. +49 89 2399-2843

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP2003/011153

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1, 3, 4	as originally filed
2	received on 06.08.2005 with letter of 04.08.2005
2a	received on 06.01.2006 with letter of 06.01.2006

Claims, Numbers

1-5	received on 06.01.2006 with letter of 06.01.2006

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   - ☐ the description, pages:
   - ☐ the claims, Nos.:
   - ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-5
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-5
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-5
	No:	Claims	

2. Citations and explanations

see separate sheet

DE 197 06 295 A1 describes a printing process, comprising the step of transferring two-dimensional colour printings with the help of a transferring pillow using ink type printing.

EP 1127 710 A1 discloses a method to transfer an ink image from one medium to a second medium at ambient temperature. Therein a digitized image is selected to be printed on an ink type printer.

EP 1 288 719 A2 and US 2003/0104308 A1 disclose an image forming material, an image formation method and a method for manufacturing a colour proof.
This document claims a layered material and a printing process in which a laser has the function to change the chemical properties of the layers contained in the claimed material.

EP 1 318 486 A1 discloses an apparatus for marking articles. It is mentioned that a common implementation of this invention is the creation of two-dimensional shapes and furthermore that the method may include at least one further printing step which is performed by rollers or cylinders under the use of special inks to enable invisible coding.

WO 01/53113 A1 discloses optically variable security devices. This security article comprises different optically active layers, coatings and an optical interference pattern. In this method lasers are used to scribe the diffraction patterns, which comprise a two-dimensional structure.

The method for the production of a stamping tool to stamp safety elements in surfaces of carrier material according to claim 1 differs from the disclosure of the cited prior art in that a 3-dimensional digitized template for the safety element is transferred to a stamping tool by laser means.

Although laser is known in the art to be used for printing and engraving surfaces, there is no disclosure or suggestion in the available citations that laser beams should be used to transfer a 3-dimensional digitised template on a stamping tool for stamping safety elements in surfaces of carrier materials, which can be used to create safety elements with a high definition structure that cannot be copied using common machine tools.

The subject matter of claim 1 is therefore novel and involves an inventive step.

Claims

1. A method for the production of a stamping tool to stamp safety elements in surfaces of carrier material, comprising the following steps:

   a) Creating a three-dimensional digitized template for the safety element, and

   b) Transferring the digital data to the stamping tool via laser beams.

2. The method according to claim 1, characterized by the transfer being performed in a single-step process.

3. The method according to claim 1, characterized by the data for illustrating or design stamping being transferred to the stamping tool at the same time as the data for the safety element.

4. The method according to claim 1, characterized by the data for illustrating or design stamping being transferred to the stamping cylinder in a seemless and endless way.

5. The method according to claim 1, characterized by the stamping tool being composed of a pair of drums consisting of counter and matrix.

DE 197 06 295 A1 describes a printing process, comprising the step of transferring two-dimensional colour printings with the help of a transferring pillow using ink type printing.

EP 1 127 710 A1 discloses a method to transfer an ink image from one medium to a second medium at ambient temperature. Therein a digitized image is selected to be printed on an ink type printer.

EP 1 288 719 A2 and US 2003/0104308 A1 disclose an image forming material, an image formation method and a method for manufacturing a colour proof. This document claims a layered material and a printing process in which a laser has the function to change the chemical properties of the layers contained in the claimed material.

The method described in EP 1 318 486 A1 discloses an apparatus for marking articles. It is mentioned that a common implementation of this invention is the creation of two-dimensional shapes and furthermore that the method may include at least one further printing step which is performed by rollers or cylinders under the use of special inks to enable invisible coding.

The document WO 01/53113 A1 discloses optically variable security devices. This security article comprises different optically active layers, coatings and an optical interference pattern. In this method lasers are used to scribe the diffraction patterns, which comprise a two-dimensional structure.

exposure through a transparent film. During the following handling step the drum surface is removed at the exposed parts with etching medium. A further copy method transfers an existing structure, such as a level holographic structure, to the stamping tool via a stamping procedure. For these procedures, usually several manual activities are necessary, which results in high production costs, and sets limits to exact reproducibility. This also applies to mere manual methods such as copper and steel engraving, which, moreover, have long processing times.

<pages 2a, 2b>

The objective of this present invention is to present a method of producing a stamping tool for the stamping of safety elements in surfaces of carrier materials, which can be used to create safety elements with a high definition structure that can not be copied using common machine tools.

This objective is solved with a method according to claim 1. Useful arrangements are the subject of the sub claims. A carrier material with a special safety element is defined in claim 1.

According to the invention, with a method to produce a stamping tool to stamp safety elements on surfaces of carrier materials, it is intended to initially create a three-dimensional digitized template for the safety element, and then to transfer the digital data onto the stamping tool. The template is created with the computer during all handling steps. By this, the template is not subject to an aging process and can be modified any time, even after many years. According to the invention technique, structures can be engraved in ranges of several nanometers. Compared to common methods, such as holography, also large areas can be processed herewith. Via controls, any geometry can be engraved into the structure of the surface. The digital data can be scaled at any discretion, which offers a cost-effective possibility to exactly match the safety element with the requirements. Because of the multitude of modification possibilities due to digital processing, hidden information can only be read out with the proper key.

The authenticity check is done with a special decoder to ensure key-lock technology. The information on the product can not be detected within the safety elements forming the lock. The information can only be made visible with the suitable key. If key and lock are distributed together on the product, a potential forger must also manufacture the key.